

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Canceled)

2. (Previously Amended) A surface sensing device according to claim 3 wherein the light source and the detector are mounted to fixed structure to which the stylus is connected.

3. (Previously Amended) A surface sensing device for use in position determining apparatus and which includes a stylus having a workpiece-contacting tip and an optical transducer system, said optical transducer system comprising a light source for producing a beam of light directed internally of the stylus towards the tip of the stylus, an optical component mounted adjacent the tip of the stylus to return the beam, and a detector positioned relative to the returned beam to receive the beam and to produce a signal indicative of a lateral displacement of the stylus tip, wherein the optical component is a retro-reflecting device which is substantially insensitive to tilting of the stylus tip.

4. (Previously Amended) A surface sensing device according to claim 3 wherein the stylus forms part of a stylus assembly which comprises a relatively stiff stylus carrier and a relatively flexible stylus.

5. (Previously Amended) A surface sensing device according to claim 4 wherein the stylus carrier is connected to a housing of the device and the light source and detector are mounted to the housing.

6. (Currently Amended) A surface sensing device for use in position determining apparatus and which includes a stylus having a workpiece-contacting tip and an optical transducer system, said optical transducer system comprising:

a light source for producing a beam of light directed internally of the stylus towards the tip of the stylus;

an optical component mounted adjacent the tip of the stylus to return the beam, wherein lateral displacement of the stylus tip causes a corresponding lateral displacement of the returned beam; and

a detector positioned relative to the returned beam to receive the beam and detect an amount of lateral displacement thereof, ~~thereby producing the detector providing a signal indicative of the position of a light spot falling on the detector which is produced by the returned beam, said signal thereby indicating the amount of lateral displacement of the stylus tip.~~

6.
7. (Currently Amended) The surface sensing device according to claim 5, wherein the detector detects the direction of indicates the lateral displacement of the returned beam in two dimensions, ~~thereby producing a signal indicative of a direction of the lateral displacement of the stylus tip.~~

7.
8. (Previously Added) The surface sensing device according to claim 5, wherein the optical component reflects the returned beam to a focused spot.

8.
9. (Previously Added) The surface sensing device according to claim 7, wherein the spot lies substantially at an end of the stylus remote from the workpiece-contacting tip.

9.
10. (Previously Added) The surface sensing device according to claim 5, wherein the light source and the detector are mounted to fixed structure to which the stylus is connected.

10.
11. (Previously Added) The surface sensing device according to claim 5, wherein the optical component is a retro-reflecting device which is substantially insensitive to tilting of the stylus tip.

11.
12. (Previously Added) The surface sensing device according to claim 5, wherein the stylus forms part of a stylus assembly which comprises a relatively stiff stylus carrier and a relatively flexible stylus.

^{12.}
~~13.~~ (Previously Added) The surface sensing device according to claim ~~12~~^{11.}, wherein the stylus carrier is connected to a housing of the device and the light source and detector are mounted to the housing.

^{13.}
~~14.~~ (Previously Added) The surface sensing device according to claim ~~13~~^{5.}, including a focusing element which receives the returned beam and directs it onto the detector.

^{14.}
~~15.~~ (Currently Amended) The surface sensing device according to claim ~~14~~^{1.}, wherein the detector ~~detects a direction of~~ indicates the lateral displacement of the returned beam in two dimensions, ~~thereby producing a signal indicative of the direction of the lateral displacement of the stylus tip.~~

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^{15.}
~~16.~~ (Previously Added) The surface sensing device according to claim ~~15~~^{1.}, wherein the optical component reflects the returned beam to a focused spot.

^{16.}
~~17.~~ (Previously Added) The surface sensing device according to claim ~~16~~^{15.}, wherein the spot lies substantially at an end of the stylus remote from the workpiece-contacting tip.

^{17.}
~~18.~~ (Previously Added) The surface sensing device according to claim ~~17~~^{1.}, including a focusing element which receives the returned beam and directs it onto the detector.